INDIANA IMAGERY AND ELEVATION PROGRAM 2016-2018

Purdue Road School 2016

Indiana Statewide Program

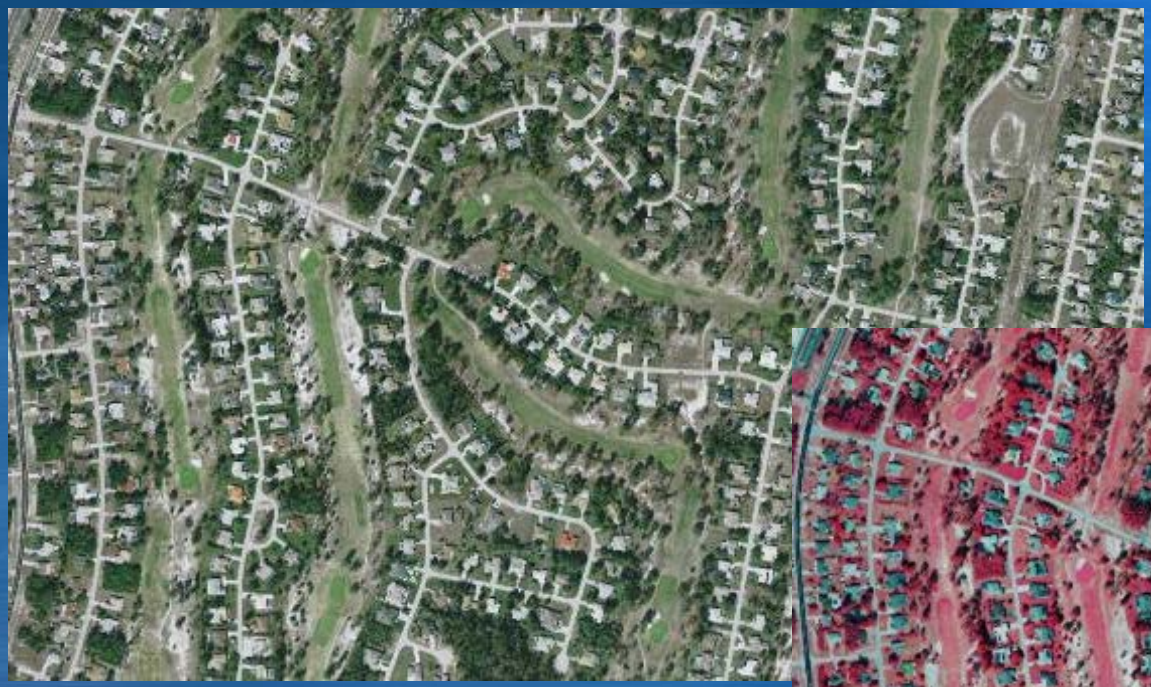
Funding has been secured for the first year of a three year update cycle of Indiana's statewide orthoimagery.

We are optimistic that funding will be available for the second and third years of the update. Pending that funding, the eastern column of counties will be acquired in the spring of 2017 and the western column will be acquired in the spring of 2018.

2016-2018 Indiana Statewide Program

- Administered through Geographic Information Office, Indiana Office of Technology – Jim Sparks, IN GIO.
- The IGIC's Orthophotography workgroup will assist with the preparation of a new RFP.
- Base Products
  - 1-foot (30-cm) Pixel Resolution
  - 4-Band Imagery (R,G,B, NIR)
  - Seamless GeoTIFF Tiles

Red, Green, Blue Bands



Near Infrared Band

2016-2018 Indiana Statewide Program

- The orthoimagery products will be reviewed by the photogrammetry team from INDOT prior to final delivery.
- Buy-up Options will be available to Indiana counties and cities
- Counties not in the central column will be able to use the contract to purchase orthoimagery in 2016 but state funding will not be available to those “out of cycle” counties.

2016-2018 Indiana Statewide Program

- The Indiana Geographic Information Office will receive a copy of all products purchased from this contract and will make these products available to the public.
- The 12-inch base product (or $$ equivalent in the case of buy-up) will be provided to each county that continues to participate in the statewide data sharing initiative.

2016-2018 Indiana Statewide Program

- RFP Specifies NEW ASPRS Orthoimagery Standards:

PRODUCT SET 1 – Digital color (4-band (RGBI), 32-bit with 8-bit unsigned pixel depth per band) orthoimagery coverage at **30-cm (12-inch) pixel** resolution, delivered in 5,000x5,000 foot grid tiles, with no "No-Data" areas; delivered as complete county coverages with a minimum of one full tile overlap with surrounding counties; in untiled (striped), uncompressed GeoTIFF file formats (without pyramids); in the appropriate Indiana State Plane East or West zone: NAD83/HARN, US Survey Feet (EPSG Codes 2967 [east] or 2968 [west]).

2016-2018 Indiana Statewide Program

- RFP Specifies NEW ASPRS Orthoimagery Standards:

  All products accuracy and testing methodology should adhere to the new ASPRS Positional Accuracy Standards for Digital Geospatial Data of 2014.

Orthoimagery Pixel Size (cm)	Horizontal Accuracy Class	Absolute Accuracy			Orthoimagery Mosaic Seamline Mismatch (cm)
		$RMSE_x$ and $RMSE_y$ (cm)	$RMSE_r$ (cm)	Horizontal Accuracy at 95% Confidence Level (cm)	
	X-cm	≤*X*	≤1.4142**X*	≤2.4477**X*	≤ 2**X*
7.5	*11.25*-cm	≤*11.25*	≤15.90	≤27.53	≤ 22.5
15.0	*22.5*-cm	≤*22.5*	≤31.82	≤55.07	≤ 45.0
30.0	*45*-cm	≤*45*	≤63.64	≤110.15	≤ 90.0

2016-2018 Indiana Statewide Program

- RFP Specifies NEW USGS 3DEP Products (QL2) and ASPRS LiDAR Accuracy Standards:

OPTIONAL PRODUCT SET 6 – 3DEP QL2 LiDAR - Mission is to develop USGS 3DEP QL2 LiDAR Data and include as USGS 3DEP BAA base deliverable products. Detailed specifications provided in 2015 USGS BAA Announcement and the V2.0 USGS Base Lidar Specifications document. LiDAR deliverables shall be in LAS format in Indiana's 5,000x5,000 foot grid tiles; in the appropriate Indiana State Plane East or West zone, and NAVD88 Vertical Datum.

2016-2018 Indiana Statewide Program

- RFP Specifies NEW USGS 3DEP Products (QL2) and ASPRS LiDAR Accuracy Standards:

  Absolute vertical accuracy for the LiDAR data for this project according to ASPRS Positional Accuracy Standards for Digital Geospatial Data and Quality Level 2 data according to the USGS LiDAR Base Specifications V2.0.

Vertical Accuracy Class	Absolute Accuracy			Relative Accuracy (where applicable)		
	$RMSE_z$ Non-Vegetated (cm)	NVA[1] at 95% Confidence Level (cm)	VVA at 95th Percentile (cm)	Within-Swath Hard Surface Repeatability (Max Diff) (cm)	Swath-to-Swath Non-Vegetated Terrain ($RMSD_z$) (cm)	Swath-to-Swath Non-Vegetated Terrain (Max Diff) (cm)
X-cm	≤*X*	≤1.96**X*	≤3.00**X*	≤0.60**X*	≤0.80**X*	≤1.60**X*
10-cm	≤*10.0*	≤19.6	≤30.0	≤6.0	≤8.0	≤16.0

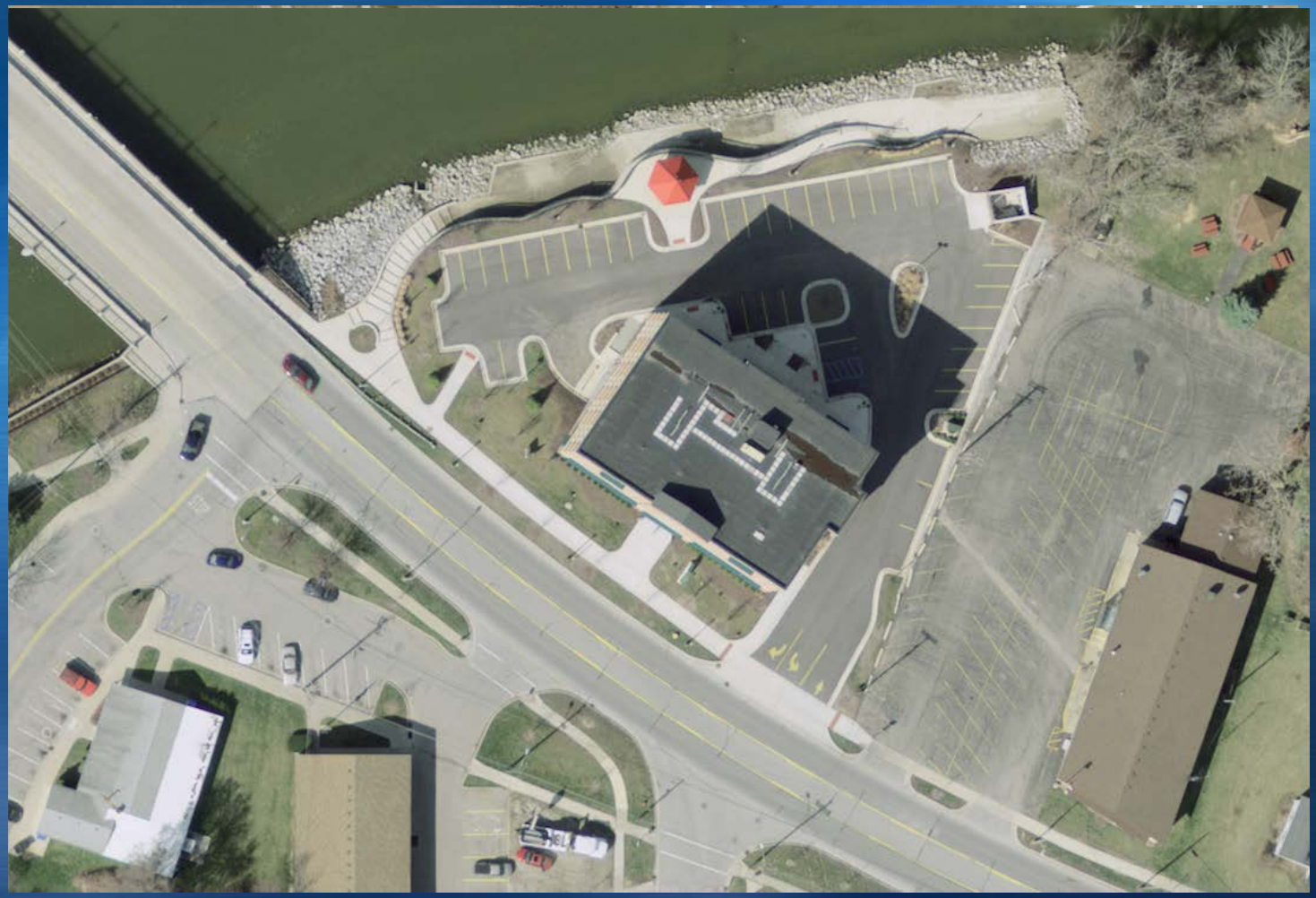
	Costs Per Square Mile, Countywide Coverage							
	In Cycle			Out of Cycle				
	1-foot Imagery	6-inch Imagery	3-inch Imagery	1-foot Imagery	6-inch Imagery	3-inch Imagery	LiDAR	Hydro Breaklines
Cost	$ 30.00	$ 89.85	$ 224.00	$ 38.24	$ 89.85	$ 224.00	$ 228.00	$ 48.00
State Cost	$ 30.00	$ 30.00	$ 30.00	$ -	$ -	$ -	$ -	$ -
Partner Cost	$ -	$ 59.85	$ 194.00	$ 38.24	$ 89.85	$ 224.00	$ 228.00	$ 48.00

Previous Orthoimagery Costs

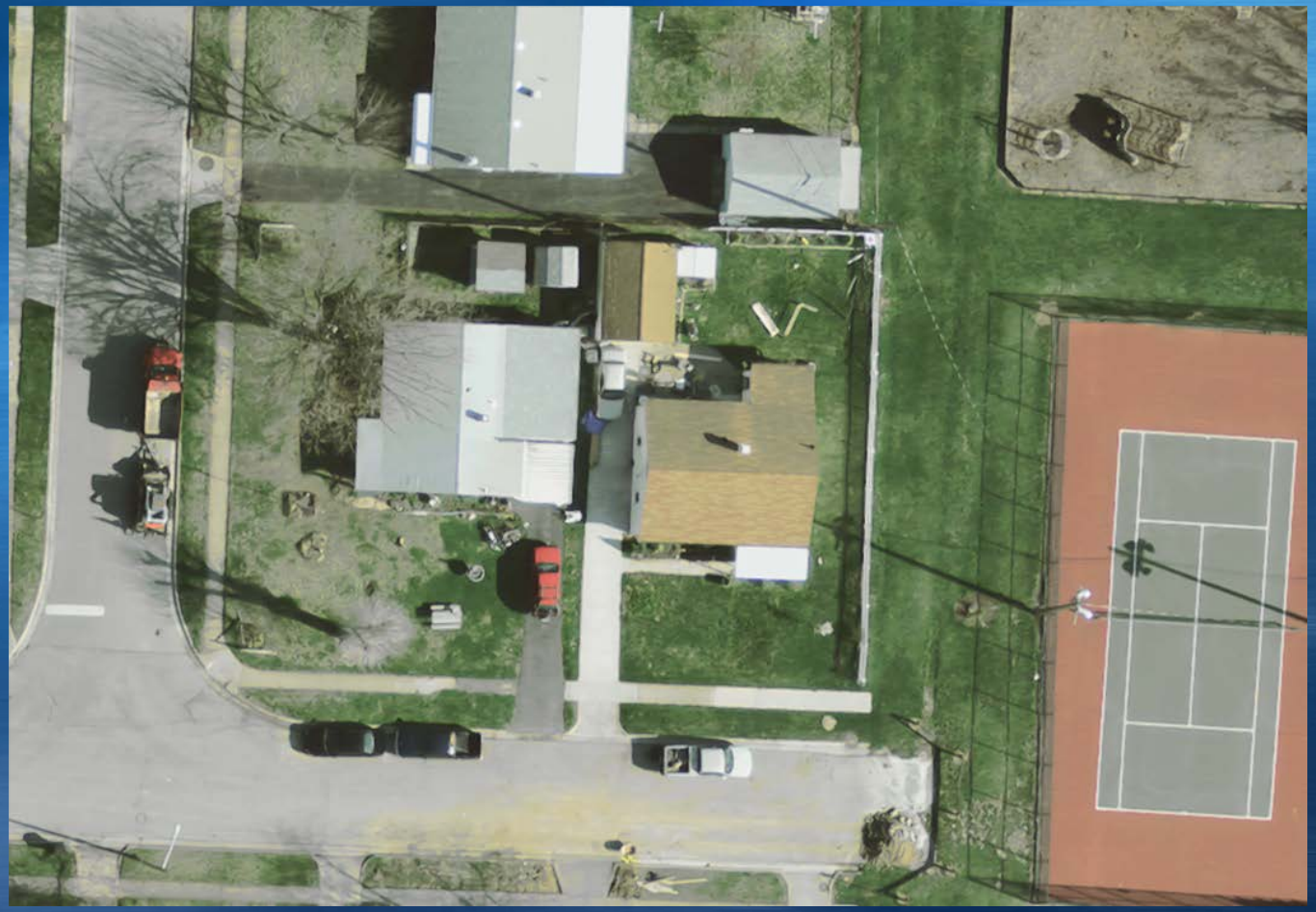
- 12 inch (30-cm) resolution - $45 per square mile (now $30)
- 6 inch (15-cm) resolution - $107 per square mile (now $89)
- 3 inch (7.5-cm) resolution - $300 per square mile (now $224)

All prices assume county wide acquisition.

Orthoimagery: Optional Resolution 6-inch



Orthoimagery: Optional Resolution 3-inch



Indiana Statewide Program

Questions?

PRODUCT SET 1		UOM	Unit Price
3	BASELINE - Per square mile fee for 30-cm (1-foot) pixel orthos for all of the state of Indiana.	Sq.Mi.	$30.00
4	Per square mile fee for 30-cm (1-foot) pixel orthos for all of the state of Indiana. Use 40,000 sq.mi.	Sq.Mi.	$30.00
5	Per square mile fee for 30-cm (1-foot) pixel orthos for a project area of at least 10,000 sq.mi.	Sq.Mi.	$30.00
6	Out of cycle per square mile fee for 30-cm (1-foot) pixel orthos for a project area of at least 400 sq.mi.	Sq.Mi.	$38.24

PRODUCT SET 2		UOM	Unit Price
7	BASELINE - Per square mile fee for 15-cm (6-inch) pixel orthos for a project area.	Sq.Mi.	$84.07
8	Per square mile fee for 15-cm (6-inch) pixel orthos for a project area of at least 40,000 sq.mi.	Sq.Mi.	$84.07
9	Per square mile fee for 15-cm (6-inch) pixel orthos for a project area of at least 10,000 sq.mi.	Sq.Mi.	$84.07
10	Per square mile fee for 15-cm (6-inch) pixel orthos for a project area of at least 2,000 sq.mi.	Sq.Mi.	$87.73
11	Per square mile fee for 15-cm (6-inch) pixel orthos for a project area of at least 400 sq.mi.	Sq.Mi.	$89.85
12	Per square mile fee for 15-cm (6-inch) pixel orthos for a project area of at least 36 sq.mi.	Sq.Mi.	$197.50
13	Out of cycle, per square mile fee for 15-cm (6-inch) pixel orthos for a project area of at least 400 sq.mi.	Sq.Mi.	$89.85
14	Out of cycle, per square mile fee for 15-cm (6-inch) pixel orthos for a project area of at least 36 sq.mi.	Sq.Mi.	$276.00

PRODUCT SET 3		UOM	Unit Price
15	Per square mile fee for 7.5-cm (3-inch) pixel orthos for a project area of at least 400 sq.mi.	Sq.Mi.	$224.00
16	Per square mile fee for 7.5-cm (3-inch) pixel orthos for a project area of at least 100 sq.mi.	Sq.Mi.	$378.10
17	Per square mile fee for 7.5-cm (3-inch) pixel orthos for a project area of at least 36 sq.mi.	Sq.Mi.	$931.25
18	Per square mile fee for 7.5-cm (3-inch) pixel orthos for a project area of at least 5 sq.mi.	Sq.Mi.	$1,279.65

OPTIONAL PRODUCT SET 6		UOM	Unit Price
24	Fee for collecting new LiDAR, classifying the point cloud, and delivering both classified and raw LAS files for a project area of 5,000 sq mi.	Sq Mi.	$202.00
25	Fee for collecting new LiDAR, classifying the point cloud, and delivering both Classified and Raw LAS files for a project area of 400 sq mi.	Sq Mi.	$228.00
26	Fee for calculating a hydro-flattened bare-earth DEM and delivering IMG tiles for a project area of 5,000 sq mi.	Sq Mi.	$23.00
27	Fee for calculating a hydro-flattened bare-earth DEM and delivering IMG tiles for a project area of 400 sq mi.	Sq Mi.	$30.58
28	Fee for calculating the breaklines representing all hydro-flattened features in a project	Sq Mi.	$39.50

Lines 26, 27 and 28 are dependent upon the execution of the services listed on lines 24 and/or 25.

OPTIONAL PRODUCT SET 7		UOM	Unit Price
29	Fee for collecting new LiDAR, classifying the point cloud, and delivering both classified and raw LAS files for a project area of 5,000 sq mi.	Sq Mi.	$586.40
30	Fee for collecting new LiDAR, classifying the point cloud, and delivering both Classified and Raw LAS files for a project area of 400 sq mi.	Sq Mi.	$624.80
31	Fee for calculating a hydro-flattened bare-earth DEM and delivering IMG tiles for a project area of 5,000 sq mi.	Sq Mi.	$29.45
32	Fee for calculating a hydro-flattened bare-earth DEM and delivering IMG tiles for a project area of 400 sq mi.	Sq Mi.	$35.38
33	Fee for calculating the breaklines representing all hydro-flattened features in a project	Sq Mi.	$48.12

Lines 31, 32 and 33 are dependent upon the execution of the services listed on lines 29 and/or 30.